

### REMARKS

By the present amendment, independent claim 1 has been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. In particular, the added phrases "a pulverizing product of agglomerate" and "during the pulverization" are supported by, among others, the passages on page 19, line 14 to page 20, line 31; page 32, lines 8 to 37, and page 35, lines 7 to 28, of the present specification. In addition, the symbol "A<sup>+</sup>" appearing in formula (1) in original claim 1 has been amended to "A<sup>-</sup>" and is supported by formula (1) appearing on page 11 of the subject specification. Entry of these amendments is respectfully requested.

In the Office Action, claims 1-7 and 9 were rejected under 35 USC § 103(a) as being unpatentable over the patent to Kitamura et al in view of the patents to Igarashi et al or Sato et al. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

Before discussing the rejection in detail, a brief review of the presently claimed invention may be quite instructive. The presently claimed invention relates to aqueous dispersions of inorganic pigment-cationic resin composite fine particles for use in preparing ink jet recording materials. In the subject aqueous dispersions, the composite fine particles, which are a pulverization product of agglomerates of the cationic resin as defined

in the amended claim 1 with the inorganic pigment particles as defined in the amended claim 1, exhibit an average secondary particle size controlled within the range of from 10 nm to 1.0  $\mu\text{m}$ .

These specific inorganic pigment-cationic resin composite fine particles enable the resultant aqueous dispersion of the composite fine particle to exhibit excellent dispersing properties and dispersion stability. Ink jet recording materials having an ink receiving layer containing these composite fine particles exhibit a high ink absorption properties and gloss. Also, these composite fine particles contained in the ink receiving layer of ink jet recording materials enable the recorded ink image on the ink receiving layer to exhibit high water resistance, excellent resistance to wet blotting, and excellent clarity comparable to that of silver salt photographic images, and especially a very high resistance to wet blotting.

As a consequence of the above features, the subject aqueous dispersions of inorganic pigment-cationic resin composite fine particles and the ink jet recording sheets of the presently claimed invention are very useful in conducting practical ink jet recording. It is submitted that the cited patents to Kitamura et al, Igarashi et al and Sato et al do not teach or suggest such aqueous dispersions of inorganic pigment-cationic resin composite fine particles as claimed, whether taken singly or in combination.

The Kitamura et al patent discloses an ink jet recording material having an ink receiving layer comprising a light fastness-enhancing agent for ink images and a plurality of composite particles. These particles are prepared by pulverizing a coagulate of inorganic pigment particles with a cationic polymer and have an average composite particle size of 10 to 1000 nm. However, the Kitamura et al patent does not teach or suggest, among other things, the specific cationic resin as defined in the amended claim 1, which enables the recorded ink images on the resultant ink receiving layer to exhibit enhanced resistance to wet blotting. Consequently, the Kitamura et al patent does not teach or suggest the specific contribution of the cationic resin as defined in amended claim 1 on the wet blotting resistance of the ink images recorded on an ink receiving layer containing the inorganic pigment-specific cationic resin composite fine particles.

It is submitted that the Igarashi et al patent does not supply the teaching deficiencies of the Kitamura et al patent as noted above. The Igarashi et al patent discloses a tack sheet for ink jet recording which comprises an ink jet recording sheet (a) and a release sheet (b). The ink jet recording sheet (a) includes an ink receiving layer formed on a support, and a cationic polymer is contained or impregnated in the support and/or the ink receiving layer. However, the Igarashi et al patent does not teach or suggest inorganic pigment-specific cationic resin composite fine particles which are a pulverization product of an agglomerate of the inorganic pigment particles with a cationic resin.

In view of the mention of an "ink-receiving layer" in column 18 of the Igarashi et al patent, the teaching of a cationic resin (High max SC-700, manufactured by Harino K.K.) may be considered to be included within in the scope of the cationic resin as defined in the amended claim 1. However, in the coating solution for the ink-receiving layer according to the Igarashi et al patent, no agglomerates of colloidal silica and synthetic non-crystalline silica (Fine SealX37H) with the cationic resin is generated. This is because these silica substances are blended in water with the cationic resin along with a polyvinyl alcohol which serves as a protective colloid (an anti-agglomeration agent) so as to protect the silica particles from agglomeration with the cationic resin. Accordingly, the resultant blend can be used as a coating solution for forming the ink-receiving layer (E).

Therefore, the Igarashi et al patent does not teach or suggest the pulverization product of agglomerates of the cationic resin with the inorganic pigment particles, that is, the inorganic pigment-cationic resin composite particles dispersed in an aqueous medium. In addition, the Igarashi et al patent does not teach or suggest that the average secondary particle size of the composite fine particles are to be in the range of from 10 nm to 1.0  $\mu\text{m}$ , during the pulverization. Furthermore, the Igarashi et al patent does not teach or suggest the advantages of the inorganic pigment-cationic resin composite fine particles according to the presently claimed invention as described above, particularly the high enhancement in the resistance of printed ink images to wet blotting.

It further is submitted that the Sato et al patent does not supply the teaching deficiencies of the Kitamura et al and Igarashi et al patents as noted above. The Sato patent discloses a cationic polymer flocculating agent where the cationic polymer has a five-membered cyclic amidine structure as shown in formula (1) of the amended claim 1 of the present application. The Sato et al patent does not teach or suggest, however, agglomerates of a cationic resin with inorganic pigment particles and to pulverization of the agglomerates into an average secondary particle size of 10 nm to 1.0  $\mu\text{m}$ . Further, the Sato et al patent does not teach or suggest the above-noted specific advantages of the pulverization product, that is, the inorganic pigment-cationic resin composite fine particles, when contained in the ink receiving layer of an ink jet recording sheet.

In summary, it is submitted that none of the cited patents teaches or suggests the specific inorganic pigment-cationic resin composite particles, namely, a pulverizing product of agglomerates of the particular cationic resin as defined in the amended claim 1 with inorganic pigment particles having an average primary particle size of 3 to 40 nm. In addition, none of the cited patents teaches or suggests that the average secondary particle size of the composite fine particles is in the range of from 10 nm to 1.0  $\mu\text{m}$ , during the pulverization.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claims 1 through 7 and 9 over the cited patents are respectfully requested.

In addition, dependent claim 8 was rejected under 35 USC § 103(a) as being unpatentable over the same patents to Kitamura et al, Igarashi et al and Sato et al in view of the publication to Nakatani et al. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

The above remarks relative to the teaching deficiencies of the cited patents to Kitamura et al, Igarashi et al and Sato et al are reiterated here with regard to this rejection. It is submitted that the publication to Nakatani et al does not supply these teaching deficiencies.

More particularly, the Nakatani et al publication discloses an ink jet recording material having an ink-receiving layer which comprises inorganic fine particles which include fumed silica particles and a hydrophilic binder. However, the Nakatani et al publication does not teach or suggest, among other things, inorganic pigment-cationic resin composite fine particles as defined in the amended claim 1 and the advantages and features obtained from such composite fine particles according to the present invention.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claim 8 over the cited patent publications are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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